

PL-700SM-N SERIES

Plastic Shell Auto-Coupling Connectors
27 pole capacity circular shell connectors

PL-700SM-N FEATURES

Compact and configurable, the PL-700 Series connector is Alden's most versatile offering in a sub .700" diameter package. PL-700 Series connectors attach to a cable with a Press & Seal™ backshell that provides the refined look and performance of an overmolded product.

Packaging (intuitive, compact, configurable)

- Pulse-Lok® auto-latch / mating confirmation
- Up to 27 contact positions
- Breakaway coupler option

- 14 standard color combinations
- Available as an over-molded cable assembly
- Custom configurations available

Performance (for harsh environments)

- Press & Seal™ self-sealing contacts & backshell
- Water Proof
- Sterilizable
- Chemical resistant housing
- High mating cycle capability

SPECIFICATIONS

Electrical (See Table A)

Mating Life: 5,000 cycles min.
Contact Resistance: < 10 milliohms*

Material

Connector Housing: Thermoplastic
Flex Reliefs: Thermoplastic Rubber
Contacts: Pins = Brass, Sockets = Bronze Alloy
Gold Plate per MIL-G-45204C
Reusable Socket = 30 - 45μ" Gold over 50 - 200μ" Nickel strike
Disposable Pin = 10 - 30μ" Gold over 50 - 200μ" Nickel strike

Mechanical

Mating Cycles: 20K cycles max
Retention Force (axial):
• Mated Connectors: 50 lbs. Minimum
• Cable to Connector: to 50 lbs. typical
• Backshell to Connector: 50 lbs. Minimum

Housing Styles (illustrated on page 2)

- Plug – in-line, cable-mount
- Receptacles – front & rear panel-mount
- Receptacle – in-line, cable-mount

Environmental

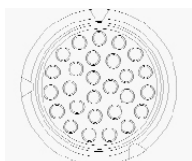
- Operating Temp: -20C to +105C**
- Moisture Resistance: to IP-67
- Sterilizable: steam, gamma & EtO
- Chem. Resistance: common OR cleaning solvents
- Shelf Life: 3 years (min) Disposable Connector

* post conditioning

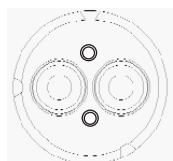
** dependent on backshell material

TABLE A: STANDARD CONTACT CONFIGURATIONS & SPECIFICATIONS

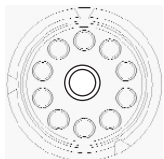
Up to 27 contact positions



Standard hybrid circuit arrangements



Coaxial & custom circuits available



Number of Poles	Contact Size Pin ϕ (mm)	Max Wire Gauge	Operating Voltage	Operating Current	Contact Resistance
27	0.5	28	300 V RMS	0.5 A	< 14m ohms
24	0.5	28	300 V RMS	0.5 A	< 14m ohms
18	0.5	28	300 V RMS	0.9 A	< 14m ohms
14	0.7	22	300 V RMS	0.9 A	< 6m ohms
12	0.7	22	300 V RMS	1.2 A	< 6m ohms
10	0.7	22	300 V RMS	2.0 A	< 6m ohms
7	0.7	22	300 V RMS	2.1 A	< 6m ohms
6	0.7	22	300 V RMS	2.1 A	< 6m ohms
5	0.7	22	300 V RMS	2.4 A	< 6m ohms
4	0.7	22	300 V RMS	2.4 A	< 6m ohms
4	2/1.5 + 2/1.7	16 / 22	300 V RMS	7.0 A / 3.0 A	< 6m ohms
3	0.7	22	300 V RMS	3.0 A	< 6m ohms
2	0.7	22	300 V RMS	3.0 A	< 6m ohms
2	1.5	16	300 V RMS	13.0 A	< 2m ohms
1	0.7	22	300 V RMS	3.0 A	< 6m ohms
1	2.3	12	300 V RMS	15.0 A	< 2m ohms

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PL-700SM-N SERIES

Plastic Shell Auto-Coupling Connectors

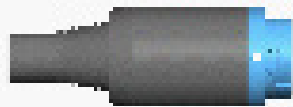
27 Pole Capacity circular shell connectors

STANDARD HOUSING OPTIONS

IN-LINE RECEPTACLES

Cable-Mount Receptacle Kit

.72 ϕ



1.54

Select this component from Table B

Cable-Mount Receptacle Kit with optional Press & Seal™ Backshell



2.20

Select Press & Seal™ Backshell from Table C

Cable-Mount Receptacle with optional overmolded strain relief



2.80

Refer to PL Series Overmolding Guide

PANEL MOUNT RECEPTACLES

Front Panel-Mount Receptacle

Mounted Height = .32

.72 ϕ



.90

Panel Thickness Range to .187"
Select this component from Table B

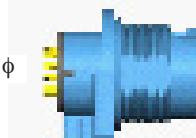
Front Panel-Mount Receptacle with Dust Cover



Select this component from Table B

Rear Panel-Mount Receptacle

.815 ϕ



.89

Select this component from Table B

IN-LINE PLUGS

Cable-Mount Plug Kit

.70 ϕ



.88

Select this component from Table B

Cable-Mount Plug with Press & Seal™ Backshell Accessory



1.60

Select Press & Seal™ Backshell from Table C

Cable-Mount Plug with optional overmolded strain relief



2.25

Refer to PL Series Overmolding Guide

All dimensions in inches (except where noted)

TABLE B:

STANDARD PART NUMBERS

Number of Poles	Receptacle Cable-Mount	Receptacle Front Panel-Mount		Receptacle FP-M w Dust Cap	Receptacle Rear Panel-Mount		Plug Cable-Mount	Plug C-M, Breakaway
	Solder Cup	Solder Cup	PCB	Solder Cup	Solder Cup	PCB	Solder Cup	Solder Cup
27	300322	300196	330196	301589	301365	331196	300112	301784
24	301270	301004	330336	301575	301351	331336	300850	301778
18	301242	300990	330322	301561	301337	331322	300822	301772
14	300294	300182	330182	301547	301323	331182	300084	301766
12	301214	300976	330308	301533	301309	331308	300794	301760
10	300186	300962	330294	301519	300697	331294	300766	301754
7	300266	300168	330168	301505	300683	331168	300056	301748
6	301158*	300948*	330280	301471*	300669*	331280	300738*	301742
5	301130*	300934*	330266	301477*	300655*	331266	300710*	301736
4	301102*	300920*	330252	301449*	300627*	331252	300482*	301730
2 + 2	300238*	300154*	-	301463*	300641*	-	300028*	301724
3	300543*	300529*	330238	301603*	301379*	331238	300501*	301718
2 x .7mm	301046*	300892*	330224	301421*	300599*	331224	300428*	301712
2 x 1.5mm	301074*	300906*	-	301435*	300613*	-	300500*	301706
1 x .7mm	301488*	300878*	330210	301497*	300585*	331210	300400*	301700
1 x 2.3mm	300210*	300140*	-	301393*	300571*	-	300000*	301790

Note: Part numbers cover black housings in Key 1 configuration. For other color and housing options utilize the Alden connector configurator located @ www.amphenolalden.com/connectors-cable-assemblies/configure-connector

Options Include:

Housing Color Options

Mating Key Options

Panel-Mount Thickness Options

Black, Gray, White, Blue, Red, Green, Yellow

2 Standard Keys, Proprietary Keys Available

Up to .187 Standard

*Press & Seal(tm) contacts, crimp or solder termination

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27 Pole Capacity Circular Shell

CONNECTOR TERMINATION OPTIONS

Contact Termination

"Press & Seal" Contact System



Available on 1 to 7-pole configurations
Accepts wire gauges up to 12 AWG (1 pole),
16 AWG (2 poles), 22 AWG (7 poles)

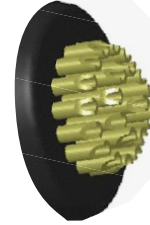
All Connectors

"Press & Seal" Features & Benefits

- Contacts provide IP-67 water-tight seal when inserted into insulator
- Easy *crimp & poke* installation
- Excellent contact retention
- Contacts may be crimped or soldered

Panel 1

Fixed Solder Cup



Tiered solder cups provide easy access to center positions. Canted cups facilitate quick and easy wire positioning. Standard on 10 to 27-pole configurations

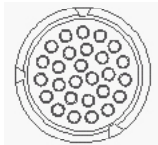
PCB Termination

PCB Mounting Template - 27 Pole

φ .162 B.C.
9 holes

φ .268 B.C.
15 holes

φ .062 B.C.
3 holes



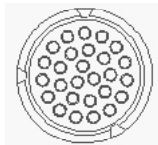
Request Sales Drawing SD-106486

PCB Mounting Template - 14 Pole

φ .102 B.C.
4 holes

φ .244 B.C.
10 holes

φ .580 B.C.
33 holes



Hole dia.
.034 +/- .01

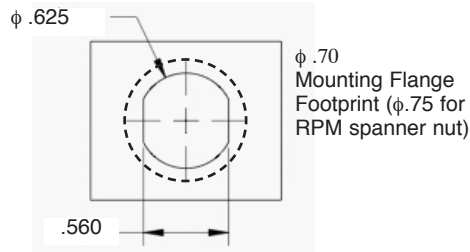
Request Sales Drawing SD-106487

Panel 2

Features & Benefits

- Available in most pole counts from 1 to 27 poles
- PCB stand-offs ensure proper positioning
- Convenient packaging -- high-temperature contact cures may be soldered to PCB and snapped into panel-mounted receptacle housing later

Panel-Mount Cut-Out Templates



Applies to both front & rear panel-mount receptacles

In-Line Plug & Receptacle Backshell Table C



A (wire exit i.d.)

1.10

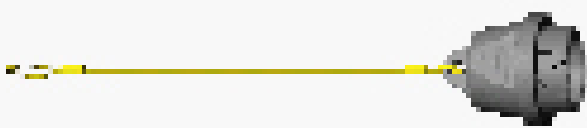
Standard color is black.
Gray is optional.

In-Line Backshell -

The PL-700 plug housing is designed to accept Alden's one piece, Press & Seal PVC Backshell. This unique backshell simply snaps into place providing an IP-67 rated seal to the plug housing and cable exit without hardware resulting in a clean overmolded look. For optimum sealing we suggest selecting a wire exit i.d. that is at least .005" smaller than your nominal cable diameter.

Accessories

Plug Soaking Cap



Alden P/N 107349-01

Standard color is black. Gray optional.

Assembly Instructions

Panel-Mount Receptacle (1 to 7 pole) = AI-PL30A

Panel-Mount Receptacle (10 to 27 pole) = AI-PL30B

In-Line Plug (1 to 7 pole) = AI-PL31A

In-Line Plug (10 to 27 pole) = AI-PL31B

Dimension A	Part # Black	Part # Gray	Accessory Description
0.053	300350	300351	Plug Backshell
0.064	300352	300353	Plug Backshell
0.075	300354	300355	Plug Backshell
0.086	300356	300357	Plug Backshell
0.096	300358	300359	Plug Backshell
0.104	300360	300361	Plug Backshell
0.120	300362	300363	Plug Backshell
0.129	300364	300365	Plug Backshell
0.142	300366	300367	Plug Backshell
0.153	300368	300369	Plug Backshell
0.162	300370	300371	Plug Backshell
0.170	300372	300373	Plug Backshell
0.186	300374	300375	Plug Backshell
0.204	300376	300377	Plug Backshell
0.215	300378	300379	Plug Backshell
0.225	300380	300381	Plug Backshell
0.235	300382	300383	Plug Backshell
0.249	300384	300385	Plug Backshell
0.264	300386	300387	Plug Backshell
0.300	300388	300389	Plug Backshell

All measurements in inches

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27 Pole Capacity Circular Shell

PL-700 SERIES PLUG & RECEPTACLE ASSEMBLY TOOLS

Field or Bench Assembly Tools

Part Number

Contact Insertion Hand Tools (for 1 to 7 poles)

- | | |
|------------------------------------|--------|
| - Insertion Hand Tool # 12 Contact | 390020 |
| - Insertion Hand Tool # 16 Contact | 390021 |
| - Insertion Hand Tool # 22 Contact | 390022 |

(Order the required nest(s) from the following selections)

Insulator Loading Nests for Hand Tools

- | | |
|--------------------------------|--------|
| - In-Line Plug, Key Pattern #1 | 390025 |
| - In-Line Plug, Key Pattern #2 | 390026 |
| - Receptacle | 390027 |

Connector Kit Hand Assembly Tools

- | | |
|--|--------|
| - Hand Vice Grip with Fixture Adapter | 390010 |
| (Order the required nest(s) from the following selections) | |
| - Back Shell Fixture (.050" to .190" Cable Diameter) | 390002 |
| - Panel Mount Receptacle Insulator Fixture & Back Shell Fixture (.200" to >.300" Cable Diameter) | 390003 |
| - In-Line Plug Insulator Fixture & In-line Receptacle Adapter Fixture | 390004 |

Back Shell Sizing Tools

- | | |
|---|--------|
| - Tool for Cable Diameter of .050" to .120" | 390042 |
| - Tool for Cable Diameter of .120" to .190" | 390043 |
| - Tool for Cable Diameter of .200" to .300" | 390044 |

Spanner Wrench

- | | |
|---|-----------|
| - Tightens RPM Receptacle's Mounting Ring | 390045-88 |
|---|-----------|

Contact Termination Tools

- | | |
|-------------------------------|--------|
| - Pneumatic Crimper | 390040 |
| - Stand for Pneumatic Crimper | 390041 |
| - Hand Crimper | 390035 |
| - Size - #12 Crimp Die | 390032 |
| - Size - #16 Crimp Die | 390031 |
| - Size - #22 Crimp Die | 390030 |

Production arbor press & fixturing is available upon request.

Receptacle



- 1 Receptacle Housing
2 Receptacle Insulator

In-Line Plug



- 1 Plug Insulator
2 Plug Housing Assembly

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<u>301046</u>	<u>301074</u>	<u>301004</u>	<u>300990</u>	<u>300962</u>	<u>300948</u>	<u>300934</u>	<u>300529</u>	<u>300892</u>	<u>300906</u>	<u>300878</u>	<u>330336</u>	<u>330182</u>
<u>330294</u>	<u>330168</u>	<u>330280</u>	<u>330266</u>	<u>330238</u>	<u>330224</u>	<u>330210</u>	<u>301575</u>	<u>301561</u>	<u>301533</u>	<u>301519</u>	<u>301477</u>	<u>301603</u>
<u>301421</u>	<u>301435</u>	<u>301351</u>	<u>301337</u>	<u>301309</u>	<u>300697</u>	<u>300669</u>	<u>300655</u>	<u>301379</u>	<u>300599</u>	<u>300613</u>	<u>300585</u>	<u>331336</u>
<u>331322</u>	<u>331308</u>	<u>331294</u>	<u>331280</u>	<u>331266</u>	<u>331238</u>	<u>331224</u>	<u>331210</u>	<u>300850</u>	<u>300822</u>	<u>300766</u>	<u>300738</u>	<u>300428</u>
<u>300500</u>	<u>300400</u>	<u>301778</u>	<u>301772</u>	<u>301766</u>	<u>301760</u>	<u>301754</u>	<u>301748</u>	<u>301742</u>	<u>301736</u>	<u>301730</u>	<u>301724</u>	<u>301718</u>
<u>301712</u>	<u>301706</u>	<u>301700</u>	<u>301790</u>	<u>300266</u>	<u>300294</u>	<u>300322</u>	<u>300920</u>	<u>300627</u>				